



SEQUENCE LISTING

<110> Ling, L.  
Sanicola-Nadel, M.

<120> ANGIOGENESIS-MODULATING COMPOSITIONS AND USES

<130> CIBT-P01-119

<140> 09/883,848

<141> 2001-06-18

<150> 60/211,919

<151> 2000-06-16

<160> 48

<170> PatentIn Ver. 2.1

<210> 1

<211> 1277

<212> DNA

<213> Gallus gallus

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TECH CENTER 1600/2900

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| tacaaccccc  | acataatctt  | caaggatgag  | gagaacagcg | gcgcagaccg  | cctgatgaca  | 300  |
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| cactacgaag  | gccgtgcctt  | ggacatcacc  | acgtctgacc | gtgaccgtaa  | taagtatggg  | 480  |
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| cgtgggtgact | gggtactggc  | cgctgatgca  | gcgggcccag | tggtagccac  | gccagtgtctg | 720  |
| ctcttccttg  | accgggatct  | gcagcgccgc  | gcctcgttcg | tggctgtgga  | gaccgagcgg  | 780  |
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| cctgctccag  | gtgactttgc  | accggtgttc  | gcgcgccgct | tacgtgtctg  | cgactcgggtg | 900  |
| ctggctccc   | gcggggacgc  | gctccagccg  | gcgcgcgtag | cccgcgtggc  | gcgcgaggaa  | 960  |
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| ctgggtgccgg | cggcgcgggg  | ctgcggggccg | ggccgggtgg  | tgggcagccg | ccggaggccg  | 120  |
| cctcgcaagc  | tcgtgcctct  | tgcctacaag  | cagttcagcc  | ccaacgtgcc | ggagaagacc  | 180  |
| ctggggcgcca | gcgggcgcta  | cgaaggcaag  | atcgcgcgca  | gctctgagcg | cttcaaagag  | 240  |
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| cgcctcatga  | cccagcgctg  | caaggaccgt  | ctgaactcac  | tggccatctc | tgtcatgaac  | 360  |
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| gaggagtctt  | tacactatga  | gggccgcgcg  | gtggatatca  | ccacctcaga | ccgtgaccga  | 480  |
| aataagtatg  | gactgctggc  | gcgcttagca  | gtggaggccg  | gcttcgactg | gggtgtattac | 540  |
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| tcagctgtaa  | agccaggaga  | ccgggtgctg  | gccatggggg  | aggatgggac | ccccaccttc  | 720  |
| agtgatgtgc  | ttattttcct  | ggaccgcgag  | ccaaaccggc  | tgagagcttt | ccaggtcacc  | 780  |
| gagactcagg  | atcctccgcg  | tcggctggcg  | ctcacgcctg  | cccacctgct | cttcattgcg  | 840  |
| gacaatcata  | cagaaccagc  | agcccacttc  | cgggccacat  | ttgccagcca | tgtgcaacca  | 900  |
| ggccaatatg  | tgctgggtatc | aggggtacca  | ggcctccagc  | ctgctcgggt | ggcagctgtc  | 960  |
| tccacccacg  | tggcccttgg  | gtcctatgct  | cctctcacia  | ggcatgggac | acttgtgggtg | 1020 |
| gaggatgtgg  | tggcctcctg  | ctttgcagct  | gtggctgacc  | accatctggc | tcagttggcc  | 1080 |
| ttctggcccc  | tgcgactgtt  | tcccagtttg  | gcattggggca | gctggacccc | aagtgagggt  | 1140 |
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| ttccatccac  | tgggcatgtc  | tggggcagga  | agctgaaggg  | actctaacca | ctgccctcct  | 1260 |
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| accccttttag | cctacaagca  | gtttattccc | aacgtagccg  | agaagaccct  | agggggccagc | 180  |
| ggcagatatg  | aagggaagat  | cacaagaaac | tccgaacgat  | ttaaggaact  | cacccccaat  | 240  |
| tacaaccccg  | acatcatatt  | taaggatgag | gaaaacacgg  | gagcagaccg  | gctgatgact  | 300  |
| cagagggtgca | aagacaagtt  | aaatgccttg | gccatctctg  | tgatgaacca  | gtggcctgga  | 360  |
| gtgaggctgc  | gagtgaaccga | gggctgggat | gaggacggcc  | atcattcaga  | ggagtctcta  | 420  |
| cactatgagg  | gtcgagcagt  | ggacatcacc | acgtccgacc  | gggaccgcag  | caagtacggc  | 480  |
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| cacatccact  | gttctgtgaa  | agcagagaac | tccgtggcgg  | ccaaatccgg  | cggctgtttc  | 600  |
| ccgggatccg  | ccaccgtgca  | cctggagcag | ggcggcacca  | agctgggtgaa | ggacttacgt  | 660  |
| cccggagacc  | gcgtgctggc  | ggctgacgac | cagggccggc  | tgctgtacag  | cgacttcctc  | 720  |
| accttcctgg  | accgcgacga  | aggcgccaag | aaggtcttct  | acgtgatcga  | gacgctggag  | 780  |
| ccgcgcgagc  | gcctgctgct  | caccgcccgc | cacctgctct  | tcgtggcgcc  | gcacaacgac  | 840  |
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| gtgacgctgc  | gagaggagga  | ggcggggcgc | tacgcgcccgc | tcacggcgca  | cggcaccatt  | 1020 |
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| cgggccttcg  | cgcctttccg  | cctggcgcac | gcgctgctgg  | ccgcgctggc  | acccgcccgc  | 1140 |
| acggacggcg  | ggggcggggg  | cagcatccct | gcagcgcaat  | ctgcaacgga  | agcgaggggc  | 1200 |
| gcggagccga  | ctgcgggcat  | ccactggtac | tcgcagctgc  | tctaccacat  | tggcacctgg  | 1260 |
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<210> 5

<211> 1256

<212> DNA

<213> Brachydanio rerio

<400> 5

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| agatgcaaag  | acaagctgaa  | ctcgttgccc  | atctctgtaa  | tgaaccactg | gccagggggt  | 360  |
| aagctgcgtg  | tgacagaggg  | ctgggatgag  | gacggtcacc  | atcttgaaga | atcactccac  | 420  |
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| cagcggggct  | cgttcgcacc  | agtgactgca  | catgggacca  | ttgtggctga | cagaatactg  | 1020 |
| gcgtcctggt  | acgccgtaac  | agaggaccag  | gggcttgccg  | atctggcctt | cgcccccgc   | 1080 |
| aggctctatt  | attacgtgtc  | atcattcctg  | tccccaaaa   | ctccagcagt | cgggtccaatg | 1140 |
| cgactttaca  | acaggagggg  | gtccactggt  | actccaggct  | cctgtcatca | aatgggaacg  | 1200 |
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<213> Homo sapiens

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| ggactggcgt  | gcggaaccggg | caggggggttc | gggaagagga  | ggcaccccaa  | aaagctgacc  | 120  |
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| aggtatgaag  | ggaagatctc  | cagaaactcc  | gagcgattta  | aggaactcac  | ccccaattac  | 240  |
| aacccccgaca | tcatatttaa  | ggatgaagaa  | aacaccggag  | cggacaggct  | gatgactcag  | 300  |
| aggtgtaagg  | acaagttgaa  | cgcttttgcc  | atctcgggtga | tgaaccagt   | gccaggagt   | 360  |
| aaactgcggg  | tgaccgaggg  | ctgggacgaa  | gatggccacc  | actcagagga  | gtctctgcac  | 420  |
| tacgagggcc  | gcgagtgga   | catcaccacg  | tctgaccgcg  | accgcagcaa  | gtacggcatg  | 480  |
| ctggcccgc   | tggcggtgga  | ggccggcttc  | gactgggtgt  | actacgagtc  | caaggcacat  | 540  |
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| ggctcggcca  | cggtgcacct  | ggagcagggc  | ggcaccaagc  | tgggtgaagga | cctgagcccc  | 660  |
| ggggaccgcg  | tgctggcggc  | ggacgaccag  | ggccggctgc  | tctacagcga  | cttcctcact  | 720  |
| ttcctggacc  | gcgacgacgg  | cgccaagaag  | gtcttctacg  | tgatcgagac  | gcgggagccg  | 780  |
| cgcgagcgcc  | tgctgctcac  | cgccgcgcac  | ctgctctttg  | tggcgccgca  | caacgactcg  | 840  |
| gccaccgggg  | agcccagagg  | gtcctcgggc  | tcggggccgc  | cttcggggg   | cgactgggg   | 900  |
| cctcggggcg  | tgttcgccag  | ccgcgtgcgc  | ccggggccagc | gcgtgtacgt  | ggtggccgag  | 960  |
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| gctcgtgct   | acgcgggtcat | cgaggagcac  | agctgggcgc  | accgggcctt  | cgcccccctt  | 1140 |
| cgcctggcgc  | acgcgtcct   | ggctgactg   | gcgcccgcgc  | gcacggaccg  | cggcggggac  | 1200 |
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| gccgacgctc  | cgggtgcggg  | ggccaccgcg  | ggcatccact  | ggtactcgca  | gctgctctac  | 1320 |
| caaataggca  | cctggctcct  | ggacagcgag  | gccctgcacc  | cgctgggcat  | ggcgggtcaag | 1380 |
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<400> 7

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| cccggctccg | gccccgactg  | cacttctgcc | tggctctgtt | gctgctgctg  | gtgggtgccc | 120  |
| cggcatgggg | ctgcggggccg | ggtcgggtgg | tgggcagccg | ccggcgaccg  | ccacgcaaac | 180  |
| tcgtgccgct | cgctacaag   | cagttcagcc | ccaatgtgcc | cgagaagacc  | ctgggcgcca | 240  |
| gcggacgcta | tgaaggcaag  | atcgctcgca | gctccgagcg | cttcaaggag  | ctcaccacca | 300  |
| attacaatcc | agacatcatc  | ttcaaggacg | aggagaacac | aggcgccgac  | cgctcatga  | 360  |
| cccagcgctg | caaggaccgc  | ctgaactcgc | tggctatctc | ggtgatgaac  | cagtggccc  | 420  |
| gtgtgaagct | gcgggtgacc  | gagggctggg | acgaggacgg | ccaccactca  | gaggagtccc | 480  |
| tgcattatga | gggcccgcgc  | gtggacatca | ccacatcaga | ccgcgaccgc  | aataagtatg | 540  |
| gactgctggc | gcgcttgcca  | gtggaggccg | gctttgactg | ggtgtattac  | gagtcaaagg | 600  |
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| ggccgggaga | ccgtgtgctg  | gccatggggg | aggatgggag | ccccaccttc  | agcgatgtgc | 780  |
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| acccccacag | ccgcctggca  | ctcacacccc | ctcacctgct | ctttacggct  | gacaatcaca | 900  |
| cggagccggc | agcccgtctc  | cgggccacat | ttgccagcca | cgtgcagcct  | ggccagtag  | 960  |
| tgctggtggc | tggggtgcca  | ggcctgcagc | ctgcccgcgt | ggcagctgtc  | tctacacacg | 1020 |
| tggccctcgg | ggcctacgcc  | ccgctcacia | agcatgggac | actggtggtg  | gaggatgtgg | 1080 |
| tggcatcctg | cttcgcggcc  | gtggctgacc | accacctggc | tcagttggcc  | ttctggcccc | 1140 |
| tgagactctt | tcacagcttg  | gcatggggca | gctggacccc | gggggagggg  | gtgcattggt | 1200 |
| acccccagct | gctctaccgc  | ctggggcgct | tctgctaga  | agagggcagc  | ttccaccac  | 1260 |
| tgggcatgtc | cggggcaggg  | agctgaaagg | actccaccgc | tgcctcctg   | gaactgctgt | 1320 |
| actgggtcca | gaagcctctc  | agccaggagg | gagctggccc | tgggaaggac  | ctgagctggg | 1380 |
| ggacactggc | tcctgccatc  | tcctctgcca | tgaagataca | ccattgagac  | ttgactgggc | 1440 |

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| ctcagcctgc  | tctcactacg | agttttcata | ctctgcctcc | cccattggga | gggcccattc | 1620 |
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<400> 8

|             |             |            |            |             |             |      |
|-------------|-------------|------------|------------|-------------|-------------|------|
| atggctctcc  | tgaccaatct  | actgcccttg | tgctgcttgg | cacttctggc  | gctgccagcc  | 60   |
| cagagctgcg  | ggccgggccc  | ggggccggtt | ggccggcgcc | gctatgcgcg  | caagcagctc  | 120  |
| gtgccgctac  | tctacaagca  | atttgtgccc | ggcgtgccag | agcggaccct  | gggcgccagt  | 180  |
| gggccagcgg  | aggggagggg  | ggcaaggggc | tccgagcgct | tccgggacct  | cgtgcccac   | 240  |
| tacaaccccc  | acatcatctt  | caaggatgag | gagaacagtg | gagccgaccg  | cctgatgacc  | 300  |
| gagcgttgca  | aggagagggg  | gaacgctttg | gccattgccg | tgatgaacat  | gtggcccggg  | 360  |
| gtgcgccctac | gagtgaactga | gggctgggac | gaggacggcc | accacgctca  | ggattcactc  | 420  |
| cactacgaag  | gccgtgcttt  | ggacatcact | acgtctgacc | gcgaccgcaa  | caagtatggg  | 480  |
| ttgctggcgc  | gcctcgcagt  | ggaagccggc | ttcgactggg | tctactacga  | gtcccgcac   | 540  |
| cacgtccacg  | tgtcgggtcaa | agctgataac | tcactggcgg | tccggggcggg | cggctgcttt  | 600  |
| ccgggaaatg  | caactgtgcg  | cctgtggagc | ggcgagcgga | aagggctgcg  | ggaactgcac  | 660  |
| cgcggagact  | gggttttggc  | ggccgatgcg | tcaggccggg | tggtgcccac  | gccggtgctg  | 720  |
| ctcttcctgg  | accgggactt  | gcagcgccgg | gcttcatttg | tggtgtgga   | gaccgagtgg  | 780  |
| cctccacgca  | aactgttgct  | cacgcccttg | cacctggtgt | ttgccgctcg  | agggccggcg  | 840  |
| cccgcgccag  | gcgactttgc  | accggtgttc | gcgcgcggcg | tacgcgctgg  | ggactcgggtg | 900  |
| ctggcgcccc  | gcgggggatgc | gcttcggcca | gcgcgcgtgg | cccgtgtggc  | gcgggaggaa  | 960  |
| gccgtgggcg  | tgttcgcgcc  | gctcaccgcg | cacgggacgc | tgctggtgaa  | cgatgtcctg  | 1020 |
| gcctcttgct  | acgcggttct  | ggagagtcac | cagtgggcgc | accgcgcttt  | tgcccccttg  | 1080 |
| agactgctgc  | acgcgctagg  | ggcgctgctc | cccggcgggg | ccgtccagcc  | gactggcatg  | 1140 |
| cattgggtact | ctcggctcct  | ctaccgctta | gcggaggagc | tactgggctg  | a           | 1191 |

<210> 9  
 <211> 1251  
 <212> DNA  
 <213> Brachydanio rerio

<400> 9

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| atggacgtaa | ggctgcatct | gaagcaattt | gctttactgt  | gttttatcag | cttgcttctg | 60   |
| acgccttggt | gattagcctg | tggtcctggt | agaggttatg  | gaaaacgaag | acacccaaag | 120  |
| aaattaaccc | cgttggctta | caagcaattc | atccccaacg  | ttgctgagaa | aacgcttgga | 180  |
| gccagcggca | aatacgaagg | caaaatcaca | aggaattcag  | agagatttaa | agagctgatt | 240  |
| ccgaattata | atcccgatat | catctttaag | gacgaggaaa  | acacaaacgc | tgacaggctg | 300  |
| atgaccaagc | gctgtaagga | caagttaa   | tcgttggcca  | tatccgtcat | gaaccactgg | 360  |
| cccggcgtga | aactgcgcgt | cactgaaggc | tggtgatgagg | atggtcacca | tttagaagaa | 420  |
| tctttgcact | atgagggacg | ggcagtggac | atcactacct  | cagacaggga | taaaagcaag | 480  |
| tatgggatgc | tatccaggct | tgcagtggag | gcaggattcg  | actgggtcta | ttatgaatct | 540  |
| aaagcccaca | tacactgctc | tgtcaaagca | gaaaattcag  | tggtgcttaa | atcaggagga | 600  |
| tgttttcctg | ggtctgggac | ggtgacactt | ggtgatggga  | cgaggaaacc | catcaaagat | 660  |
| cttaaagtgg | gcgaccgggt | tttggctgca | gacgagaagg  | gaaatgtctt | aataagcgac | 720  |
| tttattatgt | ttatagacca | cgatccgaca | acgagaaggc  | aattcatcgt | catcgagacg | 780  |
| tcagaacctt | tcaccaagct | caccctcact | gccgcgcacc  | tagttttcgt | tggaaactct | 840  |
| tcagcagctt | cgggtataac | agcaacattt | gccagcaacg  | tgaagcctgg | agatacagtt | 900  |
| ttagtgtggg | aagacacatg | cgagagcctc | aagagcggtta | cagtgaaaag | gatttacact | 960  |
| gaggagcacg | agggtctttt | tgcgccagtc | accgcgcacg  | gaaccataat | agtggatcag | 1020 |

gtgttgccat cgtgctacgc ggtcattgag aaccacaaat gggcacattg ggctttttgcg 1080  
 ccggtcaggt tgtgtcacia gctgatgacg tggcttttttc cggctcgtga atcaaacgtc 1140  
 aattttcagg aggatgggtat ccactgggtac tcaaatatgc tgtttcacat cggctccttg 1200  
 ctgctggaca gagactcttt ccattccactc gggatttttac acttaagttg a 1251

<210> 10  
 <211> 425  
 <212> PRT  
 <213> Gallus gallus

<400> 10  
 Met Val Glu Met Leu Leu Leu Thr Arg Ile Leu Leu Val Gly Phe Ile  
 1 5 10 15  
 Cys Ala Leu Leu Val Ser Ser Gly Leu Thr Cys Gly Pro Gly Arg Gly  
 20 25 30  
 Ile Gly Lys Arg Arg His Pro Lys Lys Leu Thr Pro Leu Ala Tyr Lys  
 35 40 45  
 Gln Phe Ile Pro Asn Val Ala Glu Lys Thr Leu Gly Ala Ser Gly Arg  
 50 55 60  
 Tyr Glu Gly Lys Ile Thr Arg Asn Ser Glu Arg Phe Lys Glu Leu Thr  
 65 70 75 80  
 Pro Asn Tyr Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn Thr Gly  
 85 90 95  
 Ala Asp Arg Leu Met Thr Gln Arg Cys Lys Asp Lys Leu Asn Ala Leu  
 100 105 110  
 Ala Ile Ser Val Met Asn Gln Trp Pro Gly Val Lys Leu Arg Val Thr  
 115 120 125  
 Glu Gly Trp Asp Glu Asp Gly His His Ser Glu Glu Ser Leu His Tyr  
 130 135 140  
 Glu Gly Arg Ala Val Asp Ile Thr Thr Ser Asp Arg Asp Arg Ser Lys  
 145 150 155 160  
 Tyr Gly Met Leu Ala Arg Leu Ala Val Glu Ala Gly Phe Asp Trp Val  
 165 170 175  
 Tyr Tyr Glu Ser Lys Ala His Ile His Cys Ser Val Lys Ala Glu Asn  
 180 185 190  
 Ser Val Ala Ala Lys Ser Gly Gly Cys Phe Pro Gly Ser Ala Thr Val  
 195 200 205  
 His Leu Glu His Gly Gly Thr Lys Leu Val Lys Asp Leu Ser Pro Gly  
 210 215 220  
 Asp Arg Val Leu Ala Ala Asp Ala Asp Gly Arg Leu Leu Tyr Ser Asp  
 225 230 235 240

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Thr | Phe | Leu | Asp | Arg | Met | Asp | Ser | Ser | Arg | Lys | Leu | Phe | Tyr | 245 | 250 | 255 |     |
| Val | Ile | Glu | Thr | Arg | Gln | Pro | Arg | Ala | Arg | Leu | Leu | Leu | Thr | Ala | Ala | 260 | 265 | 270 |     |
| His | Leu | Leu | Phe | Val | Ala | Pro | Gln | His | Asn | Gln | Ser | Glu | Ala | Thr | Gly | 275 | 280 | 285 |     |
| Ser | Thr | Ser | Gly | Gln | Ala | Leu | Phe | Ala | Ser | Asn | Val | Lys | Pro | Gly | Gln | 290 | 295 | 300 |     |
| Arg | Val | Tyr | Val | Leu | Gly | Glu | Gly | Gly | Gln | Gln | Leu | Leu | Pro | Ala | Ser | 305 | 310 | 315 | 320 |
| Val | His | Ser | Val | Ser | Leu | Arg | Glu | Glu | Ala | Ser | Gly | Ala | Tyr | Ala | Pro | 325 | 330 | 335 |     |
| Leu | Thr | Ala | Gln | Gly | Thr | Ile | Leu | Ile | Asn | Arg | Val | Leu | Ala | Ser | Cys | 340 | 345 | 350 |     |
| Tyr | Ala | Val | Ile | Glu | Glu | His | Ser | Trp | Ala | His | Trp | Ala | Phe | Ala | Pro | 355 | 360 | 365 |     |
| Phe | Arg | Leu | Ala | Gln | Gly | Leu | Leu | Ala | Ala | Leu | Cys | Pro | Asp | Gly | Ala | 370 | 375 | 380 |     |
| Ile | Pro | Thr | Ala | Ala | Thr | Thr | Thr | Thr | Gly | Ile | His | Trp | Tyr | Ser | Arg | 385 | 390 | 395 | 400 |
| Leu | Leu | Tyr | Arg | Ile | Gly | Ser | Trp | Val | Leu | Asp | Gly | Asp | Ala | Leu | His | 405 | 410 | 415 |     |
| Pro | Leu | Gly | Met | Val | Ala | Pro | Ala | Ser |     |     |     |     |     |     |     | 420 | 425 |     |     |

<210> 11  
 <211> 396  
 <212> PRT  
 <213> Mus musculus

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| Met | Ala | Leu | Pro | Ala | Ser | Leu | Leu | Pro | Leu | Cys | Cys | Leu | Ala | Leu | Leu | 1  | 5  | 10 | 15 |
| Ala | Leu | Ser | Ala | Gln | Ser | Cys | Gly | Pro | Gly | Arg | Gly | Pro | Val | Gly | Arg | 20 | 25 | 30 |    |
| Arg | Arg | Tyr | Val | Arg | Lys | Gln | Leu | Val | Pro | Leu | Leu | Tyr | Lys | Gln | Phe | 35 | 40 | 45 |    |
| Val | Pro | Ser | Met | Pro | Glu | Arg | Thr | Leu | Gly | Ala | Ser | Gly | Pro | Ala | Glu | 50 | 55 | 60 |    |
| Gly | Arg | Val | Thr | Arg | Gly | Ser | Glu | Arg | Phe | Arg | Asp | Leu | Val | Pro | Asn | 65 | 70 | 75 | 80 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Tyr | Asn | Pro | Asp | Ile | Ile | Phe | Lys | Asp | Glu | Glu | Asn | Ser | Gly | Ala | Asp |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Arg | Leu | Met | Thr | Glu | Arg | Cys | Lys | Glu | Arg | Val | Asn | Ala | Leu | Ala | Ile |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ala | Val | Met | Asn | Met | Trp | Pro | Gly | Val | Arg | Leu | Arg | Val | Thr | Glu | Gly |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Trp | Asp | Glu | Asp | Gly | His | His | Ala | Gln | Asp | Ser | Leu | His | Tyr | Glu | Gly |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Arg | Ala | Leu | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Arg | Asn | Lys | Tyr | Gly |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Leu | Leu | Ala | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Glu | Ser | Arg | Asn | His | Ile | His | Val | Ser | Val | Lys | Ala | Asp | Asn | Ser | Leu |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ala | Val | Arg | Ala | Gly | Gly | Cys | Phe | Pro | Gly | Asn | Ala | Thr | Val | Arg | Leu |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Arg | Ser | Gly | Glu | Arg | Lys | Gly | Leu | Arg | Glu | Leu | His | Arg | Gly | Asp | Trp |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Val | Leu | Ala | Ala | Asp | Ala | Ala | Gly | Arg | Val | Val | Pro | Thr | Pro | Val | Leu |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Leu | Phe | Leu | Asp | Arg | Asp | Leu | Gln | Arg | Arg | Ala | Ser | Phe | Val | Ala | Val |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Glu | Thr | Glu | Arg | Pro | Pro | Arg | Lys | Leu | Leu | Leu | Thr | Pro | Trp | His | Leu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Val | Phe | Ala | Ala | Arg | Gly | Pro | Ala | Pro | Ala | Pro | Gly | Asp | Phe | Ala | Pro |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Val | Phe | Ala | Arg | Arg | Leu | Arg | Ala | Gly | Asp | Ser | Val | Leu | Ala | Pro | Gly |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Gly | Asp | Ala | Leu | Gln | Pro | Ala | Arg | Val | Ala | Arg | Val | Ala | Arg | Glu | Glu |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Ala | Val | Gly | Val | Phe | Ala | Pro | Leu | Thr | Ala | His | Gly | Thr | Leu | Leu | Val |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Asn | Asp | Val | Leu | Ala | Ser | Cys | Tyr | Ala | Val | Leu | Glu | Ser | His | Gln | Trp |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| Ala | His | Arg | Ala | Phe | Ala | Pro | Leu | Arg | Leu | Leu | His | Ala | Leu | Gly | Ala |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Leu | Leu | Pro | Gly | Gly | Ala | Val | Gln | Pro | Thr | Gly | Met | His | Trp | Tyr | Ser |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |

Arg Leu Leu Tyr Arg Leu Ala Glu Glu Leu Met Gly  
385 390 395

<210> 12

<211> 411

<212> PRT

<213> Mus musculus

<400> 12

Met Ser Pro Ala Trp Leu Arg Pro Arg Leu Arg Phe Cys Leu Phe Leu  
1 5 10 15

Leu Leu Leu Leu Leu Val Pro Ala Ala Arg Gly Cys Gly Pro Gly Arg  
20 25 30

Val Val Gly Ser Arg Arg Arg Pro Pro Arg Lys Leu Val Pro Leu Ala  
35 40 45

Tyr Lys Gln Phe Ser Pro Asn Val Pro Glu Lys Thr Leu Gly Ala Ser  
50 55 60

Gly Arg Tyr Glu Gly Lys Ile Ala Arg Ser Ser Glu Arg Phe Lys Glu  
65 70 75 80

Leu Thr Pro Asn Tyr Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn  
85 90 95

Thr Gly Ala Asp Arg Leu Met Thr Gln Arg Cys Lys Asp Arg Leu Asn  
100 105 110

Ser Leu Ala Ile Ser Val Met Asn Gln Trp Pro Gly Val Lys Leu Arg  
115 120 125

Val Thr Glu Gly Arg Asp Glu Asp Gly His His Ser Glu Glu Ser Leu  
130 135 140

His Tyr Glu Gly Arg Ala Val Asp Ile Thr Thr Ser Asp Arg Asp Arg  
145 150 155 160

Asn Lys Tyr Gly Leu Leu Ala Arg Leu Ala Val Glu Ala Gly Phe Asp  
165 170 175

Trp Val Tyr Tyr Glu Ser Lys Ala His Val His Cys Ser Val Lys Ser  
180 185 190

Glu His Ser Ala Ala Ala Lys Thr Gly Gly Cys Phe Pro Ala Gly Ala  
195 200 205

Gln Val Arg Leu Glu Asn Gly Glu Arg Val Ala Leu Ser Ala Val Lys  
210 215 220

Pro Gly Asp Arg Val Leu Ala Met Gly Glu Asp Gly Thr Pro Thr Phe  
225 230 235 240

Ser Asp Val Leu Ile Phe Leu Asp Arg Glu Pro Asn Arg Leu Arg Ala  
 245 250 255  
 Phe Gln Val Ile Glu Thr Gln Asp Pro Pro Arg Arg Leu Ala Leu Thr  
 260 265 270  
 Pro Ala His Leu Leu Phe Ile Ala Asp Asn His Thr Glu Pro Ala Ala  
 275 280 285  
 His Phe Arg Ala Thr Phe Ala Ser His Val Gln Pro Gly Gln Tyr Val  
 290 295 300  
 Leu Val Ser Gly Val Pro Gly Leu Gln Pro Ala Arg Val Ala Ala Val  
 305 310 315 320  
 Ser Thr His Val Ala Leu Gly Ser Tyr Ala Pro Leu Thr Arg His Gly  
 325 330 335  
 Thr Leu Val Val Glu Asp Val Val Ala Ser Cys Phe Ala Ala Val Ala  
 340 345 350  
 Asp His His Leu Ala Gln Leu Ala Phe Trp Pro Leu Arg Leu Phe Pro  
 355 360 365  
 Ser Leu Ala Trp Gly Ser Trp Thr Pro Ser Glu Gly Val His Ser Tyr  
 370 375 380  
 Pro Gln Met Leu Tyr Arg Leu Gly Arg Leu Leu Leu Glu Glu Ser Thr  
 385 390 395 400  
 Phe His Pro Leu Gly Met Ser Gly Ala Gly Ser  
 405 410

<210> 13  
 <211> 437  
 <212> PRT  
 <213> Mus musculus

<400> 13  
 Met Leu Leu Leu Leu Ala Arg Cys Phe Leu Val Ile Leu Ala Ser Ser  
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 Leu Leu Val Cys Pro Gly Leu Ala Cys Gly Pro Gly Arg Gly Phe Gly  
 20 25 30  
 Lys Arg Arg His Pro Lys Lys Leu Thr Pro Leu Ala Tyr Lys Gln Phe  
 35 40 45  
 Ile Pro Asn Val Ala Glu Lys Thr Leu Gly Ala Ser Gly Arg Tyr Glu  
 50 55 60  
 Gly Lys Ile Thr Arg Asn Ser Glu Arg Phe Lys Glu Leu Thr Pro Asn  
 65 70 75 80  
 Tyr Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn Thr Gly Ala Asp  
 85 90 95

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Leu | Met | Thr | Gln | Arg | Cys | Lys | Asp | Lys | Leu | Asn | Ala | Leu | Ala | Ile |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ser | Val | Met | Asn | Gln | Trp | Pro | Gly | Val | Arg | Leu | Arg | Val | Thr | Glu | Gly |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Trp | Asp | Glu | Asp | Gly | His | His | Ser | Glu | Glu | Ser | Leu | His | Tyr | Glu | Gly |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Arg | Ala | Val | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Arg | Ser | Lys | Tyr | Gly |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Met | Leu | Ala | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Glu | Ser | Lys | Ala | His | Ile | His | Cys | Ser | Val | Lys | Ala | Glu | Asn | Ser | Val |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ala | Ala | Lys | Ser | Gly | Gly | Cys | Phe | Pro | Gly | Ser | Ala | Thr | Val | His | Leu |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Glu | Gln | Gly | Gly | Thr | Lys | Leu | Val | Lys | Asp | Leu | Arg | Pro | Gly | Asp | Arg |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Val | Leu | Ala | Ala | Asp | Asp | Gln | Gly | Arg | Leu | Leu | Tyr | Ser | Asp | Phe | Leu |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Thr | Phe | Leu | Asp | Arg | Asp | Glu | Gly | Ala | Lys | Lys | Val | Phe | Tyr | Val | Ile |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Glu | Thr | Leu | Glu | Pro | Arg | Glu | Arg | Leu | Leu | Leu | Thr | Ala | Ala | His | Leu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Leu | Phe | Val | Ala | Pro | His | Asn | Asp | Ser | Gly | Pro | Thr | Pro | Gly | Pro | Ser |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Ala | Leu | Phe | Ala | Ser | Arg | Val | Arg | Pro | Gly | Gln | Arg | Val | Tyr | Val | Val |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Ala | Glu | Arg | Gly | Gly | Asp | Arg | Arg | Leu | Leu | Pro | Ala | Ala | Val | His | Ser |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Val | Thr | Leu | Arg | Glu | Glu | Glu | Ala | Gly | Ala | Tyr | Ala | Pro | Leu | Thr | Ala |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| His | Gly | Thr | Ile | Leu | Ile | Asn | Arg | Val | Leu | Ala | Ser | Cys | Tyr | Ala | Val |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| Ile | Glu | Glu | His | Ser | Trp | Ala | His | Arg | Ala | Phe | Ala | Pro | Phe | Arg | Leu |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Ala | His | Ala | Leu | Leu | Ala | Ala | Leu | Ala | Pro | Ala | Arg | Thr | Asp | Gly | Gly |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
| Gly | Gly | Gly | Ser | Ile | Pro | Ala | Ala | Gln | Ser | Ala | Thr | Glu | Ala | Arg | Gly |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |

Ala Glu Pro Thr Ala Gly Ile His Trp Tyr Ser Gln Leu Leu Tyr His  
405 410 415

Ile Gly Thr Trp Leu Leu Asp Ser Glu Thr Met His Pro Leu Gly Met  
420 425 430

Ala Val Lys Ser Ser  
435

<210> 14  
<211> 418  
<212> PRT  
<213> Brachydanio rerio

<400> 14  
Met Arg Leu Leu Thr Arg Val Leu Leu Val Ser Leu Leu Thr Leu Ser  
1 5 10 15

Leu Val Val Ser Gly Leu Ala Cys Gly Pro Gly Arg Gly Tyr Gly Arg  
20 25 30

Arg Arg His Pro Lys Lys Leu Thr Pro Leu Ala Tyr Lys Gln Phe Ile  
35 40 45

Pro Asn Val Ala Glu Lys Thr Leu Gly Ala Ser Gly Arg Tyr Glu Gly  
50 55 60

Lys Ile Thr Arg Asn Ser Glu Arg Phe Lys Glu Leu Thr Pro Asn Tyr  
65 70 75 80

Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn Thr Gly Ala Asp Arg  
85 90 95

Leu Met Thr Gln Arg Cys Lys Asp Lys Leu Asn Ser Leu Ala Ile Ser  
100 105 110

Val Met Asn His Trp Pro Gly Val Lys Leu Arg Val Thr Glu Gly Trp  
115 120 125

Asp Glu Asp Gly His His Phe Glu Glu Ser Leu His Tyr Glu Gly Arg  
130 135 140

Ala Val Asp Ile Thr Thr Ser Asp Arg Asp Lys Ser Lys Tyr Gly Thr  
145 150 155 160

Leu Ser Arg Leu Ala Val Glu Ala Gly Phe Asp Trp Val Tyr Tyr Glu  
165 170 175

Ser Lys Ala His Ile His Cys Ser Val Lys Ala Glu Asn Ser Val Ala  
180 185 190

Ala Lys Ser Gly Gly Cys Phe Pro Gly Ser Ala Leu Val Ser Leu Gln  
195 200 205

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asp | Gly | Gly | Gln | Lys | Ala | Val | Lys | Asp | Leu | Asn | Pro | Gly | Asp | Lys | Val |  |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Leu | Ala | Ala | Asp | Ser | Ala | Gly | Asn | Leu | Val | Phe | Ser | Asp | Phe | Ile | Met |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Phe | Thr | Asp | Arg | Asp | Ser | Thr | Thr | Arg | Arg | Val | Phe | Tyr | Val | Ile | Glu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Thr | Gln | Glu | Pro | Val | Glu | Lys | Ile | Thr | Leu | Thr | Ala | Ala | His | Leu | Leu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Phe | Val | Leu | Asp | Asn | Ser | Thr | Glu | Asp | Leu | His | Thr | Met | Thr | Ala | Ala |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Tyr | Ala | Ser | Ser | Val | Arg | Ala | Gly | Gln | Lys | Val | Met | Val | Val | Asp | Asp |  |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Ser | Gly | Gln | Leu | Lys | Ser | Val | Ile | Val | Gln | Arg | Ile | Tyr | Thr | Glu | Glu |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Gln | Arg | Gly | Ser | Phe | Ala | Pro | Val | Thr | Ala | His | Gly | Thr | Ile | Val | Val |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Asp | Arg | Ile | Leu | Ala | Ser | Cys | Tyr | Ala | Val | Ile | Glu | Asp | Gln | Gly | Leu |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| Ala | His | Leu | Ala | Phe | Ala | Pro | Ala | Arg | Leu | Tyr | Tyr | Tyr | Val | Ser | Ser |  |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Phe | Leu | Ser | Pro | Lys | Thr | Pro | Ala | Val | Gly | Pro | Met | Arg | Leu | Tyr | Asn |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
| Arg | Arg | Gly | Ser | Thr | Gly | Thr | Pro | Gly | Ser | Cys | His | Gln | Met | Gly | Thr |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |
| Trp | Leu | Leu | Asp | Ser | Asn | Met | Leu | His | Pro | Leu | Gly | Met | Ser | Val | Asn |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |

Ser Ser

<210> 15  
 <211> 475  
 <212> PRT  
 <213> Homo sapiens

<400> 15  
 Met Leu Leu Leu Ala Arg Cys Leu Leu Leu Val Leu Val Ser Ser Leu  
 1 5 10 15  
 Leu Val Cys Ser Gly Leu Ala Cys Gly Pro Gly Arg Gly Phe Gly Lys  
 20 25 30  
 Arg Arg His Pro Lys Lys Leu Thr Pro Leu Ala Tyr Lys Gln Phe Ile  
 35 40 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pro | Asn | Val | Ala | Glu | Lys | Thr | Leu | Gly | Ala | Ser | Gly | Arg | Tyr | Glu | Gly |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Lys | Ile | Ser | Arg | Asn | Ser | Glu | Arg | Phe | Lys | Glu | Leu | Thr | Pro | Asn | Tyr |  |
|     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Asn | Pro | Asp | Ile | Ile | Phe | Lys | Asp | Glu | Glu | Asn | Thr | Gly | Ala | Asp | Arg |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Leu | Met | Thr | Gln | Arg | Cys | Lys | Asp | Lys | Leu | Asn | Ala | Leu | Ala | Ile | Ser |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Val | Met | Asn | Gln | Trp | Pro | Gly | Val | Lys | Leu | Arg | Val | Thr | Glu | Gly | Trp |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |
| Asp | Glu | Asp | Gly | His | His | Ser | Glu | Glu | Ser | Leu | His | Tyr | Glu | Gly | Arg |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Ala | Val | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Arg | Ser | Lys | Tyr | Gly | Met |  |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Leu | Ala | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr | Glu |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |  |
| Ser | Lys | Ala | His | Ile | His | Cys | Ser | Val | Lys | Ala | Glu | Asn | Ser | Val | Ala |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ala | Lys | Ser | Gly | Gly | Cys | Phe | Pro | Gly | Ser | Ala | Thr | Val | His | Leu | Glu |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Gln | Gly | Gly | Thr | Lys | Leu | Val | Lys | Asp | Leu | Ser | Pro | Gly | Asp | Arg | Val |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Leu | Ala | Ala | Asp | Asp | Gln | Gly | Arg | Leu | Leu | Tyr | Ser | Asp | Phe | Leu | Thr |  |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Phe | Leu | Asp | Arg | Asp | Asp | Gly | Ala | Lys | Lys | Val | Phe | Tyr | Val | Ile | Glu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Thr | Arg | Glu | Pro | Arg | Glu | Arg | Leu | Leu | Leu | Thr | Ala | Ala | His | Leu | Leu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Phe | Val | Ala | Pro | His | Asn | Asp | Ser | Ala | Thr | Gly | Glu | Pro | Glu | Ala | Ser |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Ser | Gly | Ser | Gly | Pro | Pro | Ser | Gly | Gly | Ala | Leu | Gly | Pro | Arg | Ala | Leu |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Phe | Ala | Ser | Arg | Val | Arg | Pro | Gly | Gln | Arg | Val | Tyr | Val | Val | Ala | Glu |  |
|     | 305 |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Arg | Asp | Gly | Asp | Arg | Arg | Leu | Leu | Pro | Ala | Ala | Val | His | Ser | Val | Thr |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Leu | Ser | Glu | Glu | Ala | Ala | Gly | Ala | Tyr | Ala | Pro | Leu | Thr | Ala | Gln | Gly |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |

Thr Ile Leu Ile Asn Arg Val Leu Ala Ser Cys Tyr Ala Val Ile Glu  
 355 360 365  
 Glu His Ser Trp Ala His Arg Ala Phe Ala Pro Phe Arg Leu Ala His  
 370 375 380  
 Ala Leu Leu Ala Ala Leu Ala Pro Ala Arg Thr Asp Arg Gly Gly Asp  
 385 390 395 400  
 Ser Gly Gly Gly Asp Arg Gly Gly Gly Gly Gly Arg Val Ala Leu Thr  
 405 410 415  
 Ala Pro Gly Ala Ala Asp Ala Pro Gly Ala Gly Ala Thr Ala Gly Ile  
 420 425 430  
 His Trp Tyr Ser Gln Leu Leu Tyr Gln Ile Gly Thr Trp Leu Leu Asp  
 435 440 445  
 Ser Glu Ala Leu His Pro Leu Gly Met Ala Val Lys Ser Ser Xaa Ser  
 450 455 460  
 Arg Gly Ala Gly Gly Gly Ala Arg Glu Gly Ala  
 465 470 475

<210> 16  
 <211> 411  
 <212> PRT  
 <213> Homo sapiens

<400> 16  
 Met Ser Pro Ala Arg Leu Arg Pro Arg Leu His Phe Cys Leu Val Leu  
 1 5 10 15  
 Leu Leu Leu Leu Val Val Pro Ala Ala Trp Gly Cys Gly Pro Gly Arg  
 20 25 30  
 Val Val Gly Ser Arg Arg Arg Pro Pro Arg Lys Leu Val Pro Leu Ala  
 35 40 45  
 Tyr Lys Gln Phe Ser Pro Asn Val Pro Glu Lys Thr Leu Gly Ala Ser  
 50 55 60  
 Gly Arg Tyr Glu Gly Lys Ile Ala Arg Ser Ser Glu Arg Phe Lys Glu  
 65 70 75 80  
 Leu Thr Pro Asn Tyr Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn  
 85 90 95  
 Thr Gly Ala Asp Arg Leu Met Thr Gln Arg Cys Lys Asp Arg Leu Asn  
 100 105 110  
 Ser Leu Ala Ile Ser Val Met Asn Gln Trp Pro Gly Val Lys Leu Arg  
 115 120 125

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Thr | Glu | Gly | Trp | Asp | Glu | Asp | Gly | His | His | Ser | Glu | Glu | Ser | Leu | 130 | 135 | 140 |     |
| His | Tyr | Glu | Gly | Arg | Ala | Val | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Arg | 145 | 150 | 155 | 160 |
| Asn | Lys | Tyr | Gly | Leu | Leu | Ala | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | 165 | 170 | 175 |     |
| Trp | Val | Tyr | Tyr | Glu | Ser | Lys | Ala | His | Val | His | Cys | Ser | Val | Lys | Ser | 180 | 185 | 190 |     |
| Glu | His | Ser | Ala | Ala | Ala | Lys | Thr | Gly | Gly | Cys | Phe | Pro | Ala | Gly | Ala | 195 | 200 | 205 |     |
| Gln | Val | Arg | Leu | Glu | Ser | Gly | Ala | Arg | Val | Ala | Leu | Ser | Ala | Val | Arg | 210 | 215 | 220 |     |
| Pro | Gly | Asp | Arg | Val | Leu | Ala | Met | Gly | Glu | Asp | Gly | Ser | Pro | Thr | Phe | 225 | 230 | 235 | 240 |
| Ser | Asp | Val | Leu | Ile | Phe | Leu | Asp | Arg | Glu | Pro | His | Arg | Leu | Arg | Ala | 245 | 250 | 255 |     |
| Phe | Gln | Val | Ile | Glu | Thr | Gln | Asp | Pro | Pro | Arg | Arg | Leu | Ala | Leu | Thr | 260 | 265 | 270 |     |
| Pro | Ala | His | Leu | Leu | Phe | Thr | Ala | Asp | Asn | His | Thr | Glu | Pro | Ala | Ala | 275 | 280 | 285 |     |
| Arg | Phe | Arg | Ala | Thr | Phe | Ala | Ser | His | Val | Gln | Pro | Gly | Gln | Tyr | Val | 290 | 295 | 300 |     |
| Leu | Val | Ala | Gly | Val | Pro | Gly | Leu | Gln | Pro | Ala | Arg | Val | Ala | Ala | Val | 305 | 310 | 315 | 320 |
| Ser | Thr | His | Val | Ala | Leu | Gly | Ala | Tyr | Ala | Pro | Leu | Thr | Lys | His | Gly | 325 | 330 | 335 |     |
| Thr | Leu | Val | Val | Glu | Asp | Val | Val | Ala | Ser | Cys | Phe | Ala | Ala | Val | Ala | 340 | 345 | 350 |     |
| Asp | His | His | Leu | Ala | Gln | Leu | Ala | Phe | Trp | Pro | Leu | Arg | Leu | Phe | His | 355 | 360 | 365 |     |
| Ser | Leu | Ala | Trp | Gly | Ser | Trp | Thr | Pro | Gly | Glu | Gly | Val | His | Trp | Tyr | 370 | 375 | 380 |     |
| Pro | Gln | Leu | Leu | Tyr | Arg | Leu | Gly | Arg | Leu | Leu | Leu | Glu | Glu | Gly | Ser | 385 | 390 | 395 | 400 |
| Phe | His | Pro | Leu | Gly | Met | Ser | Gly | Ala | Gly | Ser |     |     |     |     |     | 405 | 410 |     |     |

<210> 17  
<211> 396  
<212> PRT  
<213> Homo sapiens

<400> 17

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Leu | Leu | Thr | Asn | Leu | Leu | Pro | Leu | Cys | Cys | Leu | Ala | Leu | Leu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |
| Ala | Leu | Pro | Ala | Gln | Ser | Cys | Gly | Pro | Gly | Arg | Gly | Pro | Val | Gly | Arg |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |
| Arg | Arg | Tyr | Ala | Arg | Lys | Gln | Leu | Val | Pro | Leu | Leu | Tyr | Lys | Gln | Phe |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Val | Pro | Gly | Val | Pro | Glu | Arg | Thr | Leu | Gly | Ala | Ser | Gly | Pro | Ala | Glu |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Gly | Arg | Val | Ala | Arg | Gly | Ser | Glu | Arg | Phe | Arg | Asp | Leu | Val | Pro | Asn |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Tyr | Asn | Pro | Asp | Ile | Ile | Phe | Lys | Asp | Glu | Glu | Asn | Ser | Gly | Ala | Asp |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Arg | Leu | Met | Thr | Glu | Arg | Cys | Lys | Glu | Arg | Val | Asn | Ala | Leu | Ala | Ile |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ala | Val | Met | Asn | Met | Trp | Pro | Gly | Val | Arg | Leu | Arg | Val | Thr | Glu | Gly |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Trp | Asp | Glu | Asp | Gly | His | His | Ala | Gln | Asp | Ser | Leu | His | Tyr | Glu | Gly |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Arg | Ala | Leu | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Arg | Asn | Lys | Tyr | Gly |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Leu | Leu | Ala | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Glu | Ser | Arg | Asn | His | Val | His | Val | Ser | Val | Lys | Ala | Asp | Asn | Ser | Leu |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ala | Val | Arg | Ala | Gly | Gly | Cys | Phe | Pro | Gly | Asn | Ala | Thr | Val | Arg | Leu |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Trp | Ser | Gly | Glu | Arg | Lys | Gly | Leu | Arg | Glu | Leu | His | Arg | Gly | Asp | Trp |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Val | Leu | Ala | Ala | Asp | Ala | Ser | Gly | Arg | Val | Val | Pro | Thr | Pro | Val | Leu |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Leu | Phe | Leu | Asp | Arg | Asp | Leu | Gln | Arg | Arg | Ala | Ser | Phe | Val | Ala | Val |  |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |  |
| Glu | Thr | Glu | Trp | Pro | Pro | Arg | Lys | Leu | Leu | Leu | Thr | Pro | Trp | His | Leu |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |

Val Phe Ala Ala Arg Gly Pro Ala Pro Ala Pro Gly Asp Phe Ala Pro  
 275 280 285  
 Val Phe Ala Arg Arg Leu Arg Ala Gly Asp Ser Val Leu Ala Pro Gly  
 290 295 300  
 Gly Asp Ala Leu Arg Pro Ala Arg Val Ala Arg Val Ala Arg Glu Glu  
 305 310 315 320  
 Ala Val Gly Val Phe Ala Pro Leu Thr Ala His Gly Thr Leu Leu Val  
 325 330 335  
 Asn Asp Val Leu Ala Ser Cys Tyr Ala Val Leu Glu Ser His Gln Trp  
 340 345 350  
 Ala His Arg Ala Phe Ala Pro Leu Arg Leu Leu His Ala Leu Gly Ala  
 355 360 365  
 Leu Leu Pro Gly Gly Ala Val Gln Pro Thr Gly Met His Trp Tyr Ser  
 370 375 380  
 Arg Leu Leu Tyr Arg Leu Ala Glu Glu Leu Leu Gly  
 385 390 395

<210> 18  
 <211> 416  
 <212> PRT  
 <213> Brachydanio rerio

<400> 18  
 Met Asp Val Arg Leu His Leu Lys Gln Phe Ala Leu Leu Cys Phe Ile  
 1 5 10 15  
 Ser Leu Leu Leu Thr Pro Cys Gly Leu Ala Cys Gly Pro Gly Arg Gly  
 20 25 30  
 Tyr Gly Lys Arg Arg His Pro Lys Lys Leu Thr Pro Leu Ala Tyr Lys  
 35 40 45  
 Gln Phe Ile Pro Asn Val Ala Glu Lys Thr Leu Gly Ala Ser Gly Lys  
 50 55 60  
 Tyr Glu Gly Lys Ile Thr Arg Asn Ser Glu Arg Phe Lys Glu Leu Ile  
 65 70 75 80  
 Pro Asn Tyr Asn Pro Asp Ile Ile Phe Lys Asp Glu Glu Asn Thr Asn  
 85 90 95  
 Ala Asp Arg Leu Met Thr Lys Arg Cys Lys Asp Lys Leu Asn Ser Leu  
 100 105 110  
 Ala Ile Ser Val Met Asn His Trp Pro Gly Val Lys Leu Arg Val Thr  
 115 120 125  
 Glu Gly Trp Asp Glu Asp Gly His His Leu Glu Glu Ser Leu His Tyr  
 130 135 140

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gly | Arg | Ala | Val | Asp | Ile | Thr | Thr | Ser | Asp | Arg | Asp | Lys | Ser | Lys | 145 | 150 | 155 | 160 |
| Tyr | Gly | Met | Leu | Ser | Arg | Leu | Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | 165 | 170 | 175 |     |
| Tyr | Tyr | Glu | Ser | Lys | Ala | His | Ile | His | Cys | Ser | Val | Lys | Ala | Glu | Asn | 180 | 185 | 190 |     |
| Ser | Val | Ala | Ala | Lys | Ser | Gly | Gly | Cys | Phe | Pro | Gly | Ser | Gly | Thr | Val | 195 | 200 | 205 |     |
| Thr | Leu | Gly | Asp | Gly | Thr | Arg | Lys | Pro | Ile | Lys | Asp | Leu | Lys | Val | Gly | 210 | 215 | 220 |     |
| Asp | Arg | Val | Leu | Ala | Ala | Asp | Glu | Lys | Gly | Asn | Val | Leu | Ile | Ser | Asp | 225 | 230 | 235 | 240 |
| Phe | Ile | Met | Phe | Ile | Asp | His | Asp | Pro | Thr | Thr | Arg | Arg | Gln | Phe | Ile | 245 | 250 | 255 |     |
| Val | Ile | Glu | Thr | Ser | Glu | Pro | Phe | Thr | Lys | Leu | Thr | Leu | Thr | Ala | Ala | 260 | 265 | 270 |     |
| His | Leu | Val | Phe | Val | Gly | Asn | Ser | Ser | Ala | Ala | Ser | Gly | Ile | Thr | Ala | 275 | 280 | 285 |     |
| Thr | Phe | Ala | Ser | Asn | Val | Lys | Pro | Gly | Asp | Thr | Val | Leu | Val | Trp | Glu | 290 | 295 | 300 |     |
| Asp | Thr | Cys | Glu | Ser | Leu | Lys | Ser | Val | Thr | Val | Lys | Arg | Ile | Tyr | Thr | 305 | 310 | 315 | 320 |
| Glu | Glu | His | Glu | Gly | Ser | Phe | Ala | Pro | Val | Thr | Ala | His | Gly | Thr | Ile | 325 | 330 | 335 |     |
| Ile | Val | Asp | Gln | Val | Leu | Ala | Ser | Cys | Tyr | Ala | Val | Ile | Glu | Asn | His | 340 | 345 | 350 |     |
| Lys | Trp | Ala | His | Trp | Ala | Phe | Ala | Pro | Val | Arg | Leu | Cys | His | Lys | Leu | 355 | 360 | 365 |     |
| Met | Thr | Trp | Leu | Phe | Pro | Ala | Arg | Glu | Ser | Asn | Val | Asn | Phe | Gln | Glu | 370 | 375 | 380 |     |
| Asp | Gly | Ile | His | Trp | Tyr | Ser | Asn | Met | Leu | Phe | His | Ile | Gly | Ser | Trp | 385 | 390 | 395 | 400 |
| Leu | Leu | Asp | Arg | Asp | Ser | Phe | His | Pro | Leu | Gly | Ile | Leu | His | Leu | Ser | 405 | 410 | 415 |     |

<210> 19  
 <211> 1416  
 <212> DNA  
 <213> *Drosophila melanogaster*

<220>  
 <221> CDS  
 <222> (1)..(1413)

<400> 19

|   |     |
|---|-----|
| atg gat aac cac agc tca gtg cct tgg gcc agt gcc gcc agt gtc acc | 48  |
| Met Asp Asn His Ser Ser Val Pro Trp Ala Ser Ala Ala Ser Val Thr |     |
| 1 5 10 15   |     |
| tgt ctc tcc ctg gga tgc caa atg cca cag ttc cag ttc cag ttc cag | 96  |
| Cys Leu Ser Leu Gly Cys Gln Met Pro Gln Phe Gln Phe Gln Phe Gln |     |
| 20 25 30  |     |
| ctc caa atc cgc agc gag ctc cat ctc cgc aag ccc gca aga aga acg | 144 |
| Leu Gln Ile Arg Ser Glu Leu His Leu Arg Lys Pro Ala Arg Arg Thr |     |
| 35 40 45  |     |
| caa acg atg cgc cac att gcg cat acg cag cgt tgc ctc agc agg ctg | 192 |
| Gln Thr Met Arg His Ile Ala His Thr Gln Arg Cys Leu Ser Arg Leu |     |
| 50 55 60  |     |
| acc tct ctg gtg gcc ctg ctg ctg atc gtc ttg ccg atg gtc ttt agc | 240 |
| Thr Ser Leu Val Ala Leu Leu Leu Ile Val Leu Pro Met Val Phe Ser |     |
| 65 70 75 80   |     |
| ccg gct cac agc tgc ggt cct ggc cga gga ttg ggt cgt cat agg gcg | 288 |
| Pro Ala His Ser Cys Gly Pro Gly Arg Gly Leu Gly Arg His Arg Ala |     |
| 85 90 95  |     |
| cgc aac ctg tat ccg ctg gtc ctc aag cag aca att ccc aat cta tcc | 336 |
| Arg Asn Leu Tyr Pro Leu Val Leu Lys Gln Thr Ile Pro Asn Leu Ser |     |
| 100 105 110   |     |
| gag tac acg aac agc gcc tcc gga cct ctg gag ggt gtg atc cgt cgg | 384 |
| Glu Tyr Thr Asn Ser Ala Ser Gly Pro Leu Glu Gly Val Ile Arg Arg |     |
| 115 120 125   |     |
| gat tcg ccc aaa ttc aag gac ctc gtg ccc aac tac aac agg gac atc | 432 |
| Asp Ser Pro Lys Phe Lys Asp Leu Val Pro Asn Tyr Asn Arg Asp Ile |     |
| 130 135 140   |     |
| ctt ttc cgt gac gag gaa ggc acc gga gcg gat ggc ttg atg agc aag | 480 |
| Leu Phe Arg Asp Glu Glu Gly Thr Gly Ala Asp Gly Leu Met Ser Lys |     |
| 145 150 155 160   |     |
| cgc tgc aag gag aag cta aac gtg ctg gcc tac tcg gtg atg aac gaa | 528 |
| Arg Cys Lys Glu Lys Leu Asn Val Leu Ala Tyr Ser Val Met Asn Glu |     |
| 165 170 175   |     |
| tgg ccc ggc atc cgg ctg ctg gtc acc gag agc tgg gac gag gac tac | 576 |
| Trp Pro Gly Ile Arg Leu Leu Val Thr Glu Ser Trp Asp Glu Asp Tyr |     |
| 180 185 190   |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| cat | cac | ggc | cag | gag | tcg | ctc | cac | tac | gag | ggc | cga | gcg | gtg | acc | att | 624  |
| His | His | Gly | Gln | Glu | Ser | Leu | His | Tyr | Glu | Gly | Arg | Ala | Val | Thr | Ile |      |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |      |
| gcc | acc | tcc | gat | cgc | gac | cag | tcc | aaa | tac | ggc | atg | ctc | gct | cgc | ctg | 672  |
| Ala | Thr | Ser | Asp | Arg | Asp | Gln | Ser | Lys | Tyr | Gly | Met | Leu | Ala | Arg | Leu |      |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |      |
| gcc | gtc | gag | gct | gga | ttc | gat | tgg | gtc | tcc | tac | gtc | agc | agg | cgc | cac | 720  |
| Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Ser | Tyr | Val | Ser | Arg | Arg | His |      |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |      |
| atc | tac | tgc | tcc | gtc | aag | tca | gat | tcg | tcg | atc | agt | tcc | cac | gtg | cac | 768  |
| Ile | Tyr | Cys | Ser | Val | Lys | Ser | Asp | Ser | Ser | Ile | Ser | Ser | His | Val | His |      |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |      |
| ggc | tgc | ttc | acg | ccg | gag | agc | aca | gcg | ctg | ctg | gag | agt | gga | gtc | cgg | 816  |
| Gly | Cys | Phe | Thr | Pro | Glu | Ser | Thr | Ala | Leu | Leu | Glu | Ser | Gly | Val | Arg |      |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |      |
| aag | ccg | ctc | ggc | gag | ctc | tct | atc | gga | gat | cgt | gtt | ttg | agc | atg | acc | 864  |
| Lys | Pro | Leu | Gly | Glu | Leu | Ser | Ile | Gly | Asp | Arg | Val | Leu | Ser | Met | Thr |      |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |      |
| gcc | aac | gga | cag | gcc | gtc | tac | agc | gaa | gtg | atc | ctc | ttc | atg | gac | cgc | 912  |
| Ala | Asn | Gly | Gln | Ala | Val | Tyr | Ser | Glu | Val | Ile | Leu | Phe | Met | Asp | Arg |      |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |      |
| aac | ctc | gag | cag | atg | caa | aac | ttt | gtg | cag | ctg | cac | acg | gac | ggt | gga | 960  |
| Asn | Leu | Glu | Gln | Met | Gln | Asn | Phe | Val | Gln | Leu | His | Thr | Asp | Gly | Gly |      |
|     | 305 |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |      |
| gca | gtg | ctc | acg | gtg | acg | ccg | gct | cac | ctg | gtt | agc | gtt | tgg | cag | ccg | 1008 |
| Ala | Val | Leu | Thr | Val | Thr | Pro | Ala | His | Leu | Val | Ser | Val | Trp | Gln | Pro |      |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |      |
| gag | agc | cag | aag | ctc | acg | ttt | gtg | ttt | gcg | cat | cgc | atc | gag | gag | aag | 1056 |
| Glu | Ser | Gln | Lys | Leu | Thr | Phe | Val | Phe | Ala | His | Arg | Ile | Glu | Glu | Lys |      |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |      |
| aac | cag | gtg | ctc | gta | cgg | gat | gtg | gag | acg | ggc | gag | ctg | agg | ccc | cag | 1104 |
| Asn | Gln | Val | Leu | Val | Arg | Asp | Val | Glu | Thr | Gly | Glu | Leu | Arg | Pro | Gln |      |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |      |
| cga | gtg | gtc | aag | ttg | ggc | agt | gtg | cgc | agt | aag | ggc | gtg | gtc | gcg | ccg | 1152 |
| Arg | Val | Val | Lys | Leu | Gly | Ser | Val | Arg | Ser | Lys | Gly | Val | Val | Ala | Pro |      |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |      |
| ctg | acc | cgc | gag | ggc | acc | att | gtg | gtc | aac | tcg | gtg | gcc | gcc | agt | tgc | 1200 |
| Leu | Thr | Arg | Glu | Gly | Thr | Ile | Val | Val | Asn | Ser | Val | Ala | Ala | Ser | Cys |      |
|     | 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |      |
| tat | gcg | gtg | atc | aac | agt | cag | tcg | ctg | gcc | cac | tgg | gga | ctg | gct | ccc | 1248 |
| Tyr | Ala | Val | Ile | Asn | Ser | Gln | Ser | Leu | Ala | His | Trp | Gly | Leu | Ala | Pro |      |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |      |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| atg | cgc | ctg | ctg | tcc | acg | ctg | gag | gcg | tgg | ctg | ccc | gcc | aag | gag | cag | 1296 |
| Met | Arg | Leu | Leu | Ser | Thr | Leu | Glu | Ala | Trp | Leu | Pro | Ala | Lys | Glu | Gln |      |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     | 430 |     |     |      |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ttg | cac | agt | tcg | ccg | aag | gtg | gtg | agc | tcg | gcg | cag | cag | cag | aat | ggc | 1344 |
| Leu | His | Ser | Ser | Pro | Lys | Val | Val | Ser | Ser | Ala | Gln | Gln | Gln | Asn | Gly |      |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |      |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| atc | cat | tgg | tat | gcc | aat | gcg | ctc | tac | aag | gtc | aag | gac | tac | gtg | ctg | 1392 |
| Ile | His | Trp | Tyr | Ala | Asn | Ala | Leu | Tyr | Lys | Val | Lys | Asp | Tyr | Val | Leu |      |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |      |

|     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |      |
|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|------|
| ccg | cag | agc | tgg | cgc | cac | gat | tga |  |  |  |  |  |  |  |  | 1416 |
| Pro | Gln | Ser | Trp | Arg | His | Asp |     |  |  |  |  |  |  |  |  |      |
| 465 |     |     |     |     | 470 |     |     |  |  |  |  |  |  |  |  |      |

<210> 20  
 <211> 471  
 <212> PRT  
 <213> Drosophila melanogaster

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 20 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Asp | Asn | His | Ser | Ser | Val | Pro | Trp | Ala | Ser | Ala | Ala | Ser | Val | Thr |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys      | Leu | Ser | Leu | Gly | Cys | Gln | Met | Pro | Gln | Phe | Gln | Phe | Gln | Phe | Gln |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu      | Gln | Ile | Arg | Ser | Glu | Leu | His | Leu | Arg | Lys | Pro | Ala | Arg | Arg | Thr |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gln      | Thr | Met | Arg | His | Ile | Ala | His | Thr | Gln | Arg | Cys | Leu | Ser | Arg | Leu |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Thr      | Ser | Leu | Val | Ala | Leu | Leu | Leu | Ile | Val | Leu | Pro | Met | Val | Phe | Ser |
| 65       |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |
| Pro      | Ala | His | Ser | Cys | Gly | Pro | Gly | Arg | Gly | Leu | Gly | Arg | His | Arg | Ala |
|          |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Arg      | Asn | Leu | Tyr | Pro | Leu | Val | Leu | Lys | Gln | Thr | Ile | Pro | Asn | Leu | Ser |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu      | Tyr | Thr | Asn | Ser | Ala | Ser | Gly | Pro | Leu | Glu | Gly | Val | Ile | Arg | Arg |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asp      | Ser | Pro | Lys | Phe | Lys | Asp | Leu | Val | Pro | Asn | Tyr | Asn | Arg | Asp | Ile |
|          | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Leu      | Phe | Arg | Asp | Glu | Glu | Gly | Thr | Gly | Ala | Asp | Gly | Leu | Met | Ser | Lys |
| 145      |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |
| Arg      | Cys | Lys | Glu | Lys | Leu | Asn | Val | Leu | Ala | Tyr | Ser | Val | Met | Asn | Glu |
|          |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Pro | Gly | Ile | Arg | Leu | Leu | Val | Thr | Glu | Ser | Trp | Asp | Glu | Asp | Tyr | 180 | 185 | 190 |     |
| His | His | Gly | Gln | Glu | Ser | Leu | His | Tyr | Glu | Gly | Arg | Ala | Val | Thr | Ile | 195 | 200 | 205 |     |
| Ala | Thr | Ser | Asp | Arg | Asp | Gln | Ser | Lys | Tyr | Gly | Met | Leu | Ala | Arg | Leu | 210 | 215 | 220 |     |
| Ala | Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Ser | Tyr | Val | Ser | Arg | Arg | His | 225 | 230 | 235 | 240 |
| Ile | Tyr | Cys | Ser | Val | Lys | Ser | Asp | Ser | Ser | Ile | Ser | Ser | His | Val | His | 245 | 250 | 255 |     |
| Gly | Cys | Phe | Thr | Pro | Glu | Ser | Thr | Ala | Leu | Leu | Glu | Ser | Gly | Val | Arg | 260 | 265 | 270 |     |
| Lys | Pro | Leu | Gly | Glu | Leu | Ser | Ile | Gly | Asp | Arg | Val | Leu | Ser | Met | Thr | 275 | 280 | 285 |     |
| Ala | Asn | Gly | Gln | Ala | Val | Tyr | Ser | Glu | Val | Ile | Leu | Phe | Met | Asp | Arg | 290 | 295 | 300 |     |
| Asn | Leu | Glu | Gln | Met | Gln | Asn | Phe | Val | Gln | Leu | His | Thr | Asp | Gly | Gly | 305 | 310 | 315 | 320 |
| Ala | Val | Leu | Thr | Val | Thr | Pro | Ala | His | Leu | Val | Ser | Val | Trp | Gln | Pro | 325 | 330 | 335 |     |
| Glu | Ser | Gln | Lys | Leu | Thr | Phe | Val | Phe | Ala | His | Arg | Ile | Glu | Glu | Lys | 340 | 345 | 350 |     |
| Asn | Gln | Val | Leu | Val | Arg | Asp | Val | Glu | Thr | Gly | Glu | Leu | Arg | Pro | Gln | 355 | 360 | 365 |     |
| Arg | Val | Val | Lys | Leu | Gly | Ser | Val | Arg | Ser | Lys | Gly | Val | Val | Ala | Pro | 370 | 375 | 380 |     |
| Leu | Thr | Arg | Glu | Gly | Thr | Ile | Val | Val | Asn | Ser | Val | Ala | Ala | Ser | Cys | 385 | 390 | 395 | 400 |
| Tyr | Ala | Val | Ile | Asn | Ser | Gln | Ser | Leu | Ala | His | Trp | Gly | Leu | Ala | Pro | 405 | 410 | 415 |     |
| Met | Arg | Leu | Leu | Ser | Thr | Leu | Glu | Ala | Trp | Leu | Pro | Ala | Lys | Glu | Gln | 420 | 425 | 430 |     |
| Leu | His | Ser | Ser | Pro | Lys | Val | Val | Ser | Ser | Ala | Gln | Gln | Gln | Asn | Gly | 435 | 440 | 445 |     |
| Ile | His | Trp | Tyr | Ala | Asn | Ala | Leu | Tyr | Lys | Val | Lys | Asp | Tyr | Val | Leu | 450 | 455 | 460 |     |
| Pro | Gln | Ser | Trp | Arg | His | Asp |     |     |     |     |     |     |     |     |     | 465 | 470 |     |     |

<210> 21  
<211> 522  
<212> DNA  
<213> Homo sapiens

<400> 21  
tgcggaccgg gcaggggggtt cgggaagagg aggcacccca aaaagctgac cccttttagcc 60  
tacaagcagt ttatcccca tgtggccgag aagaccctag gcgccagcgg aaggtatgaa 120  
gggaagatct ccagaaactc cgagcgattt aaggaactca cccccaatta caaccccgac 180  
atcatattta aggatgaaga aaacaccgga gcggacaggc tgatgactca gaggtgtaag 240  
gacaagttga acgctttggc catctcgggtg atgaaccagt ggccaggagt gaaactgcgg 300  
gtgaccgagg gctgggacga agatggccac cactcagagg agtctctgca ctacgagggc 360  
cgcgcagtggt acatcaccac gtctgaccgc gaccgcagca agtacggcat gctggcccg 420  
ctggcggtgg aggccggctt cgactgggtg tactacgagt ccaaggcaca tatccactgc 480  
tcggtgaaag cagagaactc ggtggcggcc aaatcgggag gc 522

<210> 22  
<211> 525  
<212> DNA  
<213> Homo sapiens

<400> 22  
tgcggggccgg gtcgggtggt gggcagccgc cggcgaccgc cacgcaaact cgtgccgctc 60  
gcctacaagc agttcagccc caatgtgccc gagaagaccc tgggcgccag cggacgctat 120  
gaaggcaaga tcgctcgcag ctccgagcgc ttcaaggagc tcaccccca ttacaatcca 180  
gacatcatct tcaaggacga ggagaacaca ggcgccgacc gcctcatgac ccagcgctgc 240  
aaggaccgcc tgaactcgct ggctatctcg gtgatgaacc agtggcccg tgtgaagctg 300  
cgggtgaccg agggctggga cgaggacggc caccactcag aggagtccct gcattatgag 360  
ggccgcgcgg tggacatcac cacatcagac cgcgaccgca ataagtatgg actgctggcg 420  
cgcttggcag tggaggccgg ctttgactgg gtgtattacg agtcaaaggc ccacgtgcat 480  
tgctccgtca agtccgagca ctccggccgca gccaaagacgg gcggc 525

<210> 23  
<211> 174  
<212> PRT  
<213> Homo sapiens

<400> 23  
Cys Gly Pro Gly Arg Val Val Gly Ser Arg Arg Arg Pro Pro Arg Lys  
1 5 10 15  
Leu Val Pro Leu Ala Tyr Lys Gln Phe Ser Pro Asn Val Pro Glu Lys  
20 25 30  
Thr Leu Gly Ala Ser Gly Arg Tyr Glu Gly Lys Ile Ala Arg Ser Ser  
35 40 45  
Glu Arg Phe Lys Glu Leu Thr Pro Asn Tyr Asn Pro Asp Ile Ile Phe  
50 55 60  
Lys Asp Glu Glu Asn Thr Gly Ala Asp Arg Leu Met Thr Gln Arg Cys  
65 70 75 80

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asp | Arg | Leu | Asn | Ser | Leu | Ala | Ile | Ser | Val | Met | Asn | Gln | Trp | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Val | Lys | Leu | Arg | Val | Thr | Glu | Gly | Trp | Asp | Glu | Asp | Gly | His | His |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Glu | Glu | Ser | Leu | His | Tyr | Glu | Gly | Arg | Ala | Val | Asp | Ile | Thr | Thr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Asp | Arg | Asp | Arg | Asn | Lys | Tyr | Gly | Leu | Leu | Ala | Arg | Leu | Ala | Val |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr | Glu | Ser | Lys | Ala | His | Val | His |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Cys | Ser | Val | Lys | Ser | Glu | His | Ser | Ala | Ala | Ala | Lys | Thr | Gly | Gly |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |

<210> 24  
 <211> 174  
 <212> PRT  
 <213> Homo sapiens

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 24 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cys      | Gly | Pro | Gly | Arg | Gly | Phe | Gly | Lys | Arg | Arg | His | Pro | Lys | Lys | Leu |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Thr      | Pro | Leu | Ala | Tyr | Lys | Gln | Phe | Ile | Pro | Asn | Val | Ala | Glu | Lys | Thr |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu      | Gly | Ala | Ser | Gly | Arg | Tyr | Glu | Gly | Lys | Ile | Ser | Arg | Asn | Ser | Glu |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg      | Phe | Lys | Glu | Leu | Thr | Pro | Asn | Tyr | Asn | Pro | Asp | Ile | Ile | Phe | Lys |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asp      | Glu | Glu | Asn | Thr | Gly | Ala | Asp | Arg | Leu | Met | Thr | Gln | Arg | Cys | Lys |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Asp      | Lys | Leu | Asn | Ala | Leu | Ala | Ile | Ser | Val | Met | Asn | Gln | Trp | Pro | Gly |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val      | Lys | Leu | Arg | Val | Thr | Glu | Gly | Trp | Asp | Glu | Asp | Gly | His | His | Ser |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu      | Glu | Ser | Leu | His | Tyr | Glu | Gly | Arg | Ala | Val | Asp | Ile | Thr | Thr | Ser |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Asp      | Arg | Asp | Arg | Ser | Lys | Tyr | Gly | Met | Leu | Ala | Arg | Leu | Ala | Val | Glu |
|          | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala      | Gly | Phe | Asp | Trp | Val | Tyr | Tyr | Glu | Ser | Lys | Ala | His | Ile | His | Cys |
| 145      |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ser      | Val | Lys | Ala | Glu | Asn | Ser | Val | Ala | Ala | Lys | Ser | Gly | Gly |     |     |
|          |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     |     |

<210> 25  
<211> 176  
<212> PRT  
<213> Homo sapiens

<400> 25  
Cys Gly Pro Gly Arg Gly Pro Val Gly Arg Arg Arg Tyr Ala Arg Lys  
1 5 10 15  
Gln Leu Val Pro Leu Leu Tyr Lys Gln Phe Val Pro Gly Val Pro Glu  
20 25 30  
Arg Thr Leu Gly Ala Ser Gly Pro Ala Glu Gly Arg Val Ala Arg Gly  
35 40 45  
Ser Glu Arg Phe Arg Asp Leu Val Pro Asn Tyr Asn Pro Asp Ile Ile  
50 55 60  
Phe Lys Asp Glu Glu Asn Ser Gly Ala Asp Arg Leu Met Thr Glu Arg  
65 70 75 80  
Cys Lys Glu Arg Val Asn Ala Leu Ala Ile Ala Val Met Asn Met Trp  
85 90 95  
Pro Gly Val Arg Leu Arg Val Thr Glu Gly Trp Asp Glu Asp Gly His  
100 105 110  
His Ala Gln Asp Ser Leu His Tyr Glu Gly Arg Ala Leu Asp Ile Thr  
115 120 125  
Thr Ser Asp Arg Asp Arg Asn Lys Tyr Gly Leu Leu Ala Arg Leu Ala  
130 135 140  
Val Glu Ala Gly Phe Asp Trp Val Tyr Tyr Glu Ser Arg Asn His Val  
145 150 155 160  
His Val Ser Val Lys Ala Asp Asn Ser Leu Ala Val Arg Ala Gly Gly  
165 170 175

<210> 26  
<211> 175  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Consensus  
sequence

<220>  
<221> SITE  
<222> (1)

<223> Xaa=Cys that may be modified, altered or substituted within another moiety or series of moieties as described herein

<220>

<221> SITE

<222> (6)

<223> Xaa=Val or Gly

<220>

<221> SITE

<222> (7)

<223> Xaa=Val, Glu or Pro

<220>

<221> SITE

<222> (8)

<223> Xaa=Gly or Val

<220>

<221> SITE

<222> (9)

<223> Xaa=Ser or Gly

<220>

<221> SITE

<222> (10)

<223> Xaa=Arg or Lys

<220>

<221> SITE

<222> (13)

<223> Xaa=Pro, His or Tyr

<220>

<221> SITE

<222> (14)

<223> Xaa=Pro or Ala

<220>

<221> SITE

<222> (15)

<223> Xaa=Arg or Lys

<220>

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<222> (17)

<223> Xaa=any amino acid

<220>

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<222> (19)

<223> Xaa=Val or Thr

<220>

<221> SITE

<222> (22)

<223> Xaa=Ala or Leu

<220>

<221> SITE

<222> (27)

<223> Xaa=Ser, Ile or Val

<220>

<221> SITE

<222> (29)

<223> Xaa=Asn or Gly

<220>

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<222> (31)

<223> Xaa=Pro or Ala

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<223> Xaa=Tyr or Ala

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<222> (45)

<223> Xaa=Ile or Val

<220>

<221> SITE

<222> (46)

<223> Xaa=Ala or Ser

<220>

<221> SITE

<222> (48)

<223> Xaa=Ser, Asn or Gly

<220>

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<222> (54)

<223> Xaa=Glu or Asp

<220>

<221> SITE

<222> (56)

<223> Xaa=Thr or Val

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<222> (71)

<223> Xaa=Thr or Ser

<220>

<221> SITE

<222> (79)

<223> Xaa=Gln or Glu

<220>  
<221> SITE  
<222> (83)  
<223> Xaa=Asp or Glu

<220>  
<221> SITE  
<222> (84)  
<223> Xaa=Arg or Lys

<220>  
<221> SITE  
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<223> Xaa=Ala, Val or Leu

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20 25 30  
Lys Thr Leu Gly Ala Ser Gly Arg Xaa Glu Gly Lys Xaa Xaa Arg Xaa  
35 40 45  
Ser Glu Arg Phe Lys Xaa Leu Xaa Pro Asn Tyr Asn Pro Asp Ile Ile  
50 55 60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Lys | Asp | Glu | Glu | Asn | Xaa | Gly | Ala | Asp | Arg | Leu | Met | Thr | Xaa | Arg | 65  | 70  | 75  | 80  |
| Cys | Lys | Xaa | Xaa | Xaa | Asn | Ser | Leu | Ala | Ile | Xaa | Val | Met | Asn | Xaa | Trp | 85  | 90  | 95  |     |
| Pro | Gly | Val | Lys | Leu | Arg | Val | Thr | Glu | Gly | Trp | Asp | Glu | Asp | Gly | His | 100 | 105 | 110 |     |
| His | Xaa | Xaa | Xaa | Ser | Leu | His | Tyr | Glu | Gly | Arg | Ala | Val | Asp | Ile | Thr | 115 | 120 | 125 |     |
| Thr | Ser | Asp | Arg | Asp | Arg | Xaa | Lys | Tyr | Gly | Xaa | Leu | Ala | Arg | Leu | Ala | 130 | 135 | 140 |     |
| Val | Glu | Ala | Gly | Phe | Asp | Trp | Val | Tyr | Tyr | Glu | Ser | Xaa | Xaa | His | Xaa | 145 | 150 | 155 | 160 |
| His | Xaa | Ser | Val | Lys | Xaa | Xaa | Xaa | Xaa | Ala | Ala | Xaa | Xaa | Gly | Gly |     | 165 | 170 | 175 |     |

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 <211> 528  
 <212> DNA  
 <213> Homo sapiens

<400> 27

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| ctactctaca  | agcaatttgt  | gcccggcgtg | ccagagcgga | ccctgggccc | cagtgggcca | 120 |
| gcggagggga  | gggtggcaag  | gggctccgag | cgcttccggg | acctcgtgcc | caactacaac | 180 |
| cccgacatca  | tcttcaagga  | tgaggagaac | agtggagccg | accgcctgat | gaccgagcgt | 240 |
| tgtaaggagc  | gggtgaacgc  | tttggccatt | gccgtgatga | acatgtggcc | cggagtgcgc | 300 |
| ctacgagtga  | ctgaggggctg | ggacgaggac | ggccaccacg | ctcaggattc | actccactac | 360 |
| gaaggccgtg  | ctttggacat  | cactacgtct | gaccgcgacc | gcaacaagta | tgggttgctg | 420 |
| gcgcgcctcg  | cagtggaagc  | cggcttcgac | tgggtctact | acgagtcccg | caaccacgtc | 480 |
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<210> 28  
 <211> 684  
 <212> DNA  
 <213> Homo sapiens

<400> 28

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| gtcttctctt | tccccccaaa | acccaaggac | accctcatga | tctcccggac | ccctgaggtc | 120 |
| acatgcgtgg | tggtggacgt | gagccacgaa | gaccctgagg | tcaagttcaa | ctggtacgtg | 180 |
| gacggcgtgg | aggtgcataa | tgccaagaca | aagccgcggg | aggagcagta | ccagagcacg | 240 |
| taccgtgtgg | tcagcgtcct | caccgtcctg | caccaggact | ggctgaatgg | caaggagtac | 300 |
| aagtgcgaag | tctccaacaa | agccctccca | gcccccatcg | agaaaaccat | ctccaaagcc | 360 |
| aaagggcagc | cccgagaacc | acaggtgtac | accctgcccc | catcccggga | tgagctgacc | 420 |
| aagaaccagg | tcagcctgac | ctgcctggtc | aaaggcttct | atcccagcga | catcgccgtg | 480 |
| gagtgggaga | gcaatgggca | gccggagaac | aactacaaga | ccacgcctcc | cgtgttgac  | 540 |
| tccgacggct | ccttcttcct | ctacagcaag | ctcaccgtgg | acaagagcag | gtggcagcag | 600 |
| gggaacgtct | tctcatgctc | cgtgatgcat | gaggctctgc | acaaccacta | cacgcagaag | 660 |
| agcctctccc | tgtctcccgg | gaaa       |            |            |            | 684 |

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<212> DNA  
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<212> DNA  
<213> Homo sapiens

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tccctgagcc ccatagtcac atgtgtggtg gtggatgtga gcgaggatga cccagatgtc 180  
cagatcagct ggtttgtgaa caacgtggaa gtacacacag ctacagacaca aaccataga 240  
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<210> 31  
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<213> Plasmid P55

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gcaaacgcag gacctccact cctcttctcc tcaacaccca cttttgccat cgaaaaacca 180  
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| tctatcgctt  | ctgaaccccg  | gtgcacctgt  | gccgaaacgc  | aaatggggaa | acacccgctt  | 660  |
| tttggtatgat | tatgcattgt  | ctccacattg  | tatgcttcca  | agattctggt | gggaataactg | 720  |
| ctgatagcct  | aacgttcatg  | atcaaaatth  | aactgttcta  | accctactt  | gacagcaata  | 780  |
| tataaacaga  | aggaagctgc  | cctgtcttaa  | accttttttt  | ttatcatcat | tattagctta  | 840  |
| ctttcataat  | tgcgactggt  | tccaattgac  | aagcttttga  | ttttaacgac | ttttaacgac  | 900  |
| aacttgagaa  | gatcaaaaaa  | caactaatta  | ttcgaaggat  | ccaaacgatg | agatttcctt  | 960  |
| caattttttac | tgcagtttta  | ttcgcagcat  | cctccgcatt  | agctgctcca | gtcaacacta  | 1020 |
| caacagaaga  | tgaacaggca  | caaattccgg  | ctgaagctgt  | catcggttac | tcagatttag  | 1080 |
| aaggggattt  | cgatgttgct  | gttttgccat  | tttccaacag  | cacaaataac | gggttattgt  | 1140 |
| ttataaatac  | tactattgcc  | agcattgctg  | ctaaagaaga  | aggggtatct | ctcgagaaaa  | 1200 |
| gatgcggacc  | gggcaggggg  | ttcgggaaga  | ggaggcacc   | caaaaagctg | acccttttag  | 1260 |
| cctacaagca  | gtttatcccc  | aatgtggccg  | agaagaccct  | aggcgccagc | ggaaggtagt  | 1320 |
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| tttcttctcg  | tacgagcttg  | ctcctgatca  | gcctatctcg  | cagctgatga | atatcttggt  | 1980 |
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| acattttcaa  | agcctgctcg  | taggttgcaa  | ccgatagggt  | tgtagagtgt | gcaatacact  | 2880 |
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| caatcagggtg | cgacaatcta  | tcgattgtat  | gggaagccc   | atgcgccaga  | gttgtttctg | 5580 |
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| actcatgggtg | atttctcact  | tgataacctt  | atttttgacg  | aggggaaatt  | aataggttgt | 6060 |
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| gcaaacgcag  | gacctccact | cctcttctcc  | tcaacaccca | cttttgccat | cgaaaaacca | 180 |
| gccagttat   | tgggcttgat | tggagctcgc  | tcattccaat | tccttctatt | aggctactaa | 240 |
| caccatgact  | ttattagcct | gtctatcctg  | gccccctgg  | cgaggttcat | gtttgtttat | 300 |
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<212> DNA

<213> Plasmid pUB115

<400> 33

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| gcccagttat  | tgggcttgat | tggagctcgc  | tcattccaat  | tccttctatt  | aggctactaa  | 240  |
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| ctgactcatg | ttgggtattgt | gaaatagacg | cagatcgagg | acactgaaaa | ataacagtta  | 10500 |
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 <211> 10462  
 <212> DNA  
 <213> Plasmid pUB116

<400> 34

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| tccatttct   | cacataagtg | ccaaacgcaa | caggagggga | tacactagca | gcagaccgtt | 120  |
| gcaaacgcag  | gacctccact | cctcttctcc | tcaacaccca | cttttgccat | cgaaaaacca | 180  |
| gcccagttat  | tgggcttgat | tggagctcgc | tcattccaat | tccttctatt | aggctactaa | 240  |
| caccatgact  | ttattagcct | gtctatcctg | gccccctgg  | cgaggttcat | gtttgtttat | 300  |
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| catcgataag  | ctgactcatg  | ttggtattgt | gaaatagacg  | cagatcggga | acactgaaaa  | 10440 |
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<211> 4205

<212> DNA

<213> Plasmid pEAG657

<400> 35

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| atttttttaac | caataggccg  | aaatcggcaa  | aatcccttat  | aaatcaaaag  | aatagaccga  | 120  |
| gatagggttg  | agtgttggtc  | cagtttgga   | caagagtcga  | ctattaaaga  | acgtggactc  | 180  |
| caacgtcaaa  | gggcgaaaaa  | ccgtctatca  | gggcgatggc  | ccactacgtg  | aaccatcacc  | 240  |
| ctaatcaagt  | tttttggggg  | cgagggtgccg | taaagcacta  | aatcgggaacc | ctaaaggagg  | 300  |
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| gacggtatcg  | ataagcttga | tatcgaattc  | ctgcagcccc | ggggatccac  | tagttctaga  | 1980 |
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| cgttgtcaga  | agtaagttgg | ccgcagtggt  | atcactcatg | gttatggcag  | cactgcataa  | 3720 |
| ttctcttact  | gtcatgccat | ccgtaagatg  | cttttctgtg | actggtgacg  | cgtcaaccaa  | 3780 |
| gtcattctga  | gaatagtgt  | tgccggcgacc | gagttgctct | tgcccgcgct  | caatacggga  | 3840 |
| taataccgcg  | ccacatagca | gaactttaaa  | agtgtctatc | attggaaaac  | gttcttcggg  | 3900 |
| gcgaaaactc  | tcaaggatct | taccgctggt  | gagatccagt | tcgatgtaac  | ccactcgtgc  | 3960 |
| acccaactga  | tcttcagcat | cttttacttt  | caccagcggt | tctgggtgag  | caaaaacagg  | 4020 |
| aaggcaaaat  | gccgcaaaaa | aggggaataag | ggcgacacgg | aatgttgaa   | tactcatact  | 4080 |
| cttccttttt  | caatattatt | gaagcattta  | tcagggttat | tgtctcatga  | gcggatacat  | 4140 |
| atttgaatgt  | atttagaaaa | ataaacaat   | aggggttccg | cgcacatttc  | cccgaaggt   | 4200 |
| gccac       |            |             |            |             |             | 4205 |

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<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 36

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<210> 37  
 <211> 29  
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 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:  
         Oligonucleotide  
  
 <400> 37  
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<210> 38  
 <211> 25  
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 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Primer  
  
 <400> 38  
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<210> 39  
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 <220>  
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<210> 40  
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<210> 41  
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<400> 41  
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<210> 42  
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<220>  
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<210> 43  
<211> 20  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Primer

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<210> 44  
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<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Primer

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<210> 45  
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<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Primer

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<210> 46  
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<220>

<223> Description of Artificial Sequence: Primer

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23

<210> 47

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 47

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25

<210> 48

<211> 4205

<212> DNA

<213> Plasmid pEAG658

<400> 48

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| atttttttaac | caataggccg | aaatcggcaa  | aatcccttat | aaatcaaaag  | aatagaccga  | 120  |
| gatagggttg  | agtgttgttc | cagtttgtaa  | caagagtcca | ctattaaaga  | acgtggactc  | 180  |
| caacgtcaaa  | gggcgaaaaa | ccgtctatca  | gggcgatggc | ccactacgtg  | aaccatcacc  | 240  |
| ctaatacaagt | tttttggggt | cgagggtgccg | taaagcacta | aatcggaacc  | ctaaagggag  | 300  |
| cccccgattt  | agagcttgac | ggggaaagcc  | ggcgaacgtg | gcgagaaagg  | aagggaagaa  | 360  |
| agcgaaagga  | gcgggcgcta | gggcgctggc  | aagtgtagcg | gtcacgctgc  | gcgtaaccac  | 420  |
| cacacccgcc  | gcgcttaatg | cgccgctaca  | gggcgcgctc | cattcgccat  | tcaggctgcg  | 480  |
| caactgttgg  | gaagggcgat | cgggtgcggc  | ctcttcgcta | ttacgccagc  | tggcgaaagg  | 540  |
| gggatgtgct  | gcaaggcgat | taagttgggt  | aacgccaggg | ttttcccagt  | cacgacgttg  | 600  |
| taaaacgacg  | gccagtgagc | gcgcgtaata  | cgactcacta | tagggcgaat  | tgggtaccgg  | 660  |
| gccctctaga  | tcctttcagc | tccctgcccc  | ggacatgccc | agtgggtgga  | agctgccctc  | 720  |
| ttctagcagg  | agacgcccc  | ggcggtagag  | cagctggggg | taccaatgca  | caccctcccc  | 780  |
| cggagtccag  | ctgccccatg | ccaagctgtg  | aaagagtctc | aggggccaga  | aggccaactg  | 840  |
| agccaggtgg  | tggtcagcca | cggccgcgaa  | gcaggatgcc | accacatcct  | ccaccaccag  | 900  |
| tgtcccatgc  | tttgtgagcg | gggcgtaggc  | cccagaggcc | acgtgtgtag  | agacagctgc  | 960  |
| cacgcgggca  | ggctgcaggc | ctggcacccc  | agccaccagc | acgtactggc  | caggctgcac  | 1020 |
| gtggctggca  | aatgtggccc | ggaagcgggc  | tgccggctcc | gtgtgattgt  | cagccgtaaa  | 1080 |
| gagcaggtga  | gcggggtgta | gtgccaggcg  | gcgtgggggg | tcctgagtc   | cgatgacctg  | 1140 |
| gaaggctctc  | agcctgtggg | gctcgcggtc  | caggaaaatg | agcacatcgc  | tgaagggtgg  | 1200 |
| gctcccatcc  | tcccccatgg | ccagcacacg  | gtctcccggc | ctcacggctg  | acaaggccac  | 1260 |
| acgcgcccc   | ctctccaggc | gtacctgggc  | tccggcaggg | tcgacgccgc  | ccgtcttggc  | 1320 |
| tgcggccgag  | tgctcggact | tgacggagca  | atgcacgtgg | gcctttgact  | cgtaatacac  | 1380 |
| ccagtcaaag  | ccggcctcca | ctgccaaagc  | cgccagcagt | ccatacttat  | tgcggtcgcg  | 1440 |
| gtctgatgtg  | gtgatgtcca | ccgcgcggcc  | ctcataatgc | agggactcct  | ctgagtgggtg | 1500 |
| gccgtcctcg  | tcccagccct | cggtcacccg  | cagcttcaca | ccgggccact  | ggttcacac   | 1560 |
| cgagatagcc  | agcgagttca | ggcggtcctt  | gcagcgctgg | gtcatgaggc  | ggtcggcgcc  | 1620 |
| tgtgttctcc  | tcgtccttga | agatgatgtc  | tggattgtaa | ttgggggtga  | gctccttgaa  | 1680 |
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| gggcacattg  | gggctgaact | gcttgtaggc  | gagcggcacg | agtttgcggtg | gcggtcgccg  | 1800 |
| gcggctgcc   | accacccgac | ccggcccgc   | gccccatgcc | gccggcacca  | ccagcagcag  | 1860 |
| caacaggacc  | aggcagaagt | gcagtcgggg  | ccggagccgg | gcgggagaca  | tggcgggccg  | 1920 |

|             |            |             |            |             |             |      |
|-------------|------------|-------------|------------|-------------|-------------|------|
| gacgggtatcg | ataagcttga | tatcgaattc  | ctgcagcccg | ggggatccac  | tagttctaga  | 1980 |
| gcggccgcca  | ccgcggtgga | gctccagctt  | ttgttccctt | tagtgagggg  | taattgcgcg  | 2040 |
| cttggcgtaa  | tcatgggcat | agctgtttcc  | tgtgtgaaat | tggtatccgc  | tcacaattcc  | 2100 |
| acacaacata  | cgagccggaa | gcataaagt   | taaagcctgg | ggtgccta    | gagtgcgcta  | 2160 |
| actcacatta  | attgcgttgc | gctcactgcc  | cgctttccag | tcgggaaacc  | tgctcgtgcc  | 2220 |
| gctgcattaa  | tgaatcggcc | aacgcgcggg  | gagagggcgt | ttgcgtattg  | ggcgctcttc  | 2280 |
| cgcttcctcg  | ctcactgact | cgctgcgctc  | ggtcgttcgg | ctgcggcgag  | cggtatcagc  | 2340 |
| tactcaaag   | gcggtataac | ggttatccac  | agaatcaggg | gataacgcag  | gaaagaacat  | 2400 |
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| aaaccgcaca  | ggactataaa | gataccaggc  | gtttccccc  | ggaagctccc  | tcgtgcgctc  | 2580 |
| tcctgttccg  | accctgccgc | ttaccggata  | cctgtccgcc | tttctccctt  | cggaagcggt  | 2640 |
| ggcgctttct  | catagctcac | gctgtaggta  | tctcagttcg | gtgtaggtcg  | ttcgctccaa  | 2700 |
| gctgggctgt  | gtgcacgaac | ccccggttca  | gcccgcaccg | tgccgcttat  | ccggtaacta  | 2760 |
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| ttttgtttgc  | aagcagcaga | ttacgcgcag  | aaaaaaagga | tctcaagaag  | atcctttgat  | 3060 |
| cttttctacg  | gggtctgacg | ctcagtggaa  | cgaaaactca | cgtaagggga  | ttttgggtcat | 3120 |
| gagattatca  | aaaaggatct | tcacctagat  | ccttttaaat | taaaaatgaa  | gttttaaatac | 3180 |
| aatctaaagt  | atatatgagt | aaacttggtc  | tgacagttac | caatgcttaa  | tcagtgcaggc | 3240 |
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| gccac       |            |             |            |             |             | 4205 |